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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,210	10/31/2003	Jemmy Sutanto Bintoro	GTRC132	2791

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TROUTMAN SANDERS LLP
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EXAMINER

ROJAS, BERNARD

ART UNIT	PAPER NUMBER
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2832

MAIL DATE	DELIVERY MODE
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06/04/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/699,210

Applicant(s)

BINTORO ET AL.

Examiner

Bernard Rojas

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2007.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119.

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Response to Arguments***

Applicant's arguments filed 03/01/2007 have been fully considered but they are not persuasive.

First, the Applicant states that Vaitkus et al. concerns an inapposite field of micromagnetic switches wherein the Applicant's claimed device is in the field of actuators locatable in a flow path. In response to applicant's argument that Vaitkus et al. is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Albarada et al. discloses an actuator (electrical device) locatable in a flow path while Vaitkus et al. is used to show that electrical devices can be on the same substrate as an integrated circuit as acknowledged by Applicant [page 6 last paragraph]. The combination of the two references yields an actuator locatable in a flow path that is located on the same substrate as an integrated circuit.

Second, the Applicant states that Vaitkus et al. is also inapplicable since it is based on a "cantilever (moveable element) 112". In response to applicant's argument that Vaitkus et al. is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied

Art Unit: 2832

upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, although Vaitkus et al. specifically discloses a cantilevered microswitch, the configuration of the microswitch is dependent on its intended use. Vaitkus et al. is used to show that electrical devices can be on the same substrate as an integrated circuit as acknowledged by Applicant [page 6 last paragraph], not to teach the configuration of the microswitch.

Third, in response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the mem switch of Albarda et al. on the same substrate with other electrical devices in order to reduce the size of the overall apparatus [paragraph 66].

In response to applicant's argument that there is a different advantage to providing an actuator locatable in a flow path on the same substrate as an integrated circuit than reducing the size of the overall device, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Albarda et al. [US 5,029,805] in view of Vaitkus et al. [US 2006/0044088].

Albarda et al. disclose a valve arrangement [figure 2] comprising: a single substrate [1] upon which is fabricated a membrane [3] and a membrane activating member [11, 12] wherein the membrane is capable of moving between a first position in which flow is inhibited through a flow path and a second position enabling flow through the flow path and the membrane activating mechanism being capable of moving the membrane between the first and second positions [figure 2, column 5, lines 28-51].

Albarda et al. fails to teach that there is an integrated circuit on the substrate.

Vaitkus et al. discloses that a mem switch can be integrated on the same substrate with other electrical devices [figure 12, paragraph 66].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the mem switch of Albarda et al. on the same substrate with other electrical devices in order to reduce the size of the overall apparatus [paragraph 66]

Claims 1-7 and 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biegelsen et al., figure 11 [US 6,123,316] in view of Albarda et al. [US 5,029,805] and further in view of Vaitkus et al. [US 2006/0044088].

Claims 1-2, 12 and 14, Biegelsen et al., figure 11, discloses an actuator for a microvalve [figure 11] comprising: a substrate assembly [202, 214] upon which is fabricated a membrane [242] and an electromagnetic membrane activating member [216] wherein the membrane is capable of moving between a first position in which flow is inhibited through a flow path and a second position enabling flow through the flow path and the membrane activating mechanism being capable of moving the membrane between the first and second positions [figure 11, column 12, line 56-column 13, line 11].

Biegelsen et al., figure 11, disclose everything claimed except the substrate assembly being formed of a single substrate [1].

Albarda et al. discloses a microvalve formed from a single substrate.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a single substrate to form the substrate assembly of Biegelsen et al., figure 11, in order to simplify fabrication.

Biegelsen et al. in view of Albarda et al. fails to teach that there is an integrated circuit on the substrate.

Vaitkus et al. discloses that a mem switch can be integrated on the same substrate with other electrical devices [figure 12, paragraph 66].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the mem switch of Biegelsen et al., as modified, on the same substrate with other electrical devices in order to reduce the size of the overall apparatus [paragraph 66]

Claim 3, Biegelsen et al., figure 11, discloses the substrate assembly including an orifice [226].

Claims 4-7, Biegelsen et al., figure 11, discloses the use of a convex bistable membrane [figure 11, column 12, line 56-column 13, line 11].

Claims 10-11, the specific energy applied to the actuator and the time to full activation would have been obvious design considerations based on the necessary operating times and working environment.

Claim 13, the specific process used to form the substrate would have been obvious to one of ordinary skill in the art at the time the invention was made based on the specific environment of intended use.

Art Unit: 2832

Claims 8-9, 14-17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biegelsen et al., figure 11, as applied to claim 1 above, and further in view of Biegelsen et al., figure 12 and Roshen et al. [US 5,475,353].

Claim 8, Biegelsen et al., figure 11, disclose everything claimed except the membrane being located between a permanent magnet and the electromagnetic force generator.

Biegelsen et al., figure 12, discloses placing the membrane between a permalloy poled region [215, column 13, lines 12-42] and the electromagnetic actuator.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the poled region of Biegelsen et al., figure 12, in Biegelsen et al., figure 11, for the purpose of controlling response time.

Roshen et al. disclose the use of at least one permanent magnet [28] with electromagnetic microactuators [18] arranged to provide latching without induced force [abstract].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use permanent magnets for the poled magnetic region of Biegelsen et al., as modified, for the purpose of maintaining bistable operation.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Rojas whose telephone number is (571) 272-1998. The examiner can normally be reached on M and W-F, 5:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2832

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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29 MAY 17